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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,292	02/14/2001	Takashi Hashimoto	203251US2	8355

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EXAMINER

EISEN, ALEXANDER

ART UNIT PAPER NUMBER

2674

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/782,292

Applicant(s)

HASHIMOTO ET AL.

Examiner

Alexander Eisen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1,2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The examiner has considered the information disclosure statements (IDS) submitted on 14 February 2001 and 14 May 2001. The US Patent No. 6,483,250 issued on disclosed in IDS related application No. 09/715,124 has been also considered and cited on PTO-892 form of this Office action.

Claim Objections

3. Claim 12 is objected to because of the following informalities: claim 12 recites "said discharge" in line 6. There is no antecedent basis for this limitation. This is the first occurrence of this limitation and it would be more appropriate to cite it as --a discharge--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1-7** are rejected under 35 U.S.C. 102(e) as being anticipated by **Hashimoto et al.**, (hereinafter "Hashimoto Patent"), **US 6,456,263**.

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With respect to **claim 1**, Hashimoto Patent discloses a plasma display device (100 in FIG. 4) comprising a plasma display panel (1) comprising a discharge cell C including a first electrode Y and a second electrode X; a driving unit (drive unit 80) for driving said discharge cell by giving a potential difference between said first electrode and said second electrode (see FIG. 8 where main electrodes X and Y are driven by various voltages creating potential differences shown as wall voltages V_w), wherein said driving unit comprises a pulse generating unit (A, X and Y driving units 85, 86 and 89, which output pulses to main electrodes A, X and Y respectively) capable of generating a voltage pulse, which continuously changing from a first voltage to a second voltage (see FIG. 8, wherein a pulse applied to a main electrode is continuously changing from 0V to -170V as in pulse $Prx1$), and said driving unit controls said pulse generating unit to start outputting said voltage, as voltage to be applied to said first electrode, and then stops the change of said voltage pulse at the point of time when said voltage pulse reaches a third voltage (for example -120V as pulse $Pry2$ in FIG. 8) between said first voltage (0V) and said second voltage (-170V).

As to **claim 2**, Hashimoto Patent teaches (see FIG. 1) that the third voltage (a maximum voltage V_r at what the change of the voltage pulse is stopped) is set pass the firing voltage V_f (on the side of the larger second voltage). A charge adjusting voltage is gradually increases from 0V to V_r , then at some point before reaching V_r an effective voltage of the discharge cell reaches the firing voltage V_f , and after a little delay a first discharge takes place (first little spike in FIG. 1D in series of spikes). As can be seen from FIG. 1A, the charge adjusting voltage continues to change and reaches the third voltage V_r after a time longer than a discharge delay time passes from the point of time when said voltage pulse exceeds said firing voltage V_f (the time passed

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after the first overshoot occurs over the V_f line in FIG. 1C, see FIGS. 1A – 1D, column 4, lines 30-67).

As to **claim 3**, the pulse form constitutes a ramp voltage as can be seen from FIGS. 1A-D and 8 (but not actually limited to that, see column 4, lines 33-36).

In regard to **claim 4**, Hashimoto Patent teaches that the driver unit is capable of generating a rectangular voltage pulse (as one applied to electrode X in FIG. 15 in the first timing line) and outputs a voltage pulse in which one of the CR voltage pulse, ramp pulse and LC resonant voltage pulse (as a ramp pulse applied to electrode Y in FIG. 15 in the second timing line) is superimposed on said rectangular pulse as a voltage applied between the first and second electrodes (as one on the third timing line in FIG. 15; see also column 15, lines 10-21).

As to **claim 5**, Hashimoto Patent further teaches that plasma display device has one field divided in a plurality of subfields (see FIGS. 6-7; column 8, lines 29-35; column 10, line 5 – column 11, line 48), each including an addressing period (TA) and sustain period (TS), set after said addressing period, and whether said discharge cell should be illuminated or not in said sustain period is determined in said addressing period, and said discharge cell is illuminated in said sustain period if it is determined in said addressing period that said discharge cell should be illuminated; and said driving unit starts and stops applying said voltage pulses in a period other than said addressing and said sustain period in at least one of said subfield in said one field (as can be seen from FIG. 7 said voltage pulse P_{ry2} is applied in an address preparation period T_R and not in the addressing period or sustain period; the preparation period T_R being a part of a subfield period T_{sf}).

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As to **claim 6**, Hashimoto Patent teaches that using the address preparation technique wherein two voltages are employed, a charge producing voltage and a charge adjusting voltage, the desired wall charges can be produced in all cells regardless of a display history (see column 6, lines 42-48), and that regardless of whether or not the discharges will take place after application of pulses Prx1, Pry1 and Pra1 in the first part of the address preparation period TR (see FIG. 7), they will be surely generated by the application of pulses Prx2, Pry2 and Pra2 (see column 13, lines 58-67), i.e. regardless of a display history (whether or not the cell was illuminated in the preceding sustain period) the discharge will be generated in the cell.

As to **claim 7**, one can see from FIG. 7 that the third voltage Pry2 is started before the addressing period and is set to a value noticeably lower than an address voltage Py applied to said first electrode Y during the addressing period (see also FIG. 2 and column 6, lines 5-18, explaining that in order for the invention to work both pulses Vr and Vp should be of same polarity and should be set in relationship shown in FIG. 2, i.e. $V_r < V_p$, Vp being an address voltage).

6. **Claims 12-14** are rejected under 35 U.S.C. 102(e) as being anticipated by **Hashimoto et al.**, (hereinafter "Hashimoto Publication"), US Patent Application Publication **US 2002/0186186 A1**.

With respect to **claim 12**, Hashimoto Publication discloses a plasma display device (100 in FIG. 2) comprising a plasma display panel (1) that comprises a discharge cell C including a first electrode (main electrode Y – scan/sustain electrode) and a second electrode A (address electrode); and a driving unit (drive unit 80) for driving said discharge cell by giving a potential difference between the first electrode and the second electrode (as in waveforms in FIG. 5),

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wherein said driving unit generates a discharge in said discharge cell during an operation for defining whether said discharge cell is illuminated or not (during addressing period), regardless of whether said discharge cell is illuminated for display or not (see FIGS. 1A and 1B, page 1, paragraphs [0012], [0032 – 0034], [0046]). As can be seen from FIGS 1A,B and paragraph [0046] during the addressing period discharge is generated in all cells whether or not any particular cell should be illuminated for display in the following sustain period.

In regard to **claim 13**, as can be seen from FIG. 2, the plasma panel (1) has a plurality of discharge cells C and the discharge during addressing period includes a first discharge (strong discharge) and a second discharge (weaker discharge) than the first discharge, the driving unit (80) performs the operation including an operation for defining whether said discharge cell is illuminated or not (this is decided by subfield data stored in the frame memory, wherein the value of each bit of information indicates whether the discharge cell is required to be lightened or not and thus indicating whether the addressing discharge is strong or weak, see paragraph [0035]) by sequentially applying an address pulse (scanning pulse P_y in FIG. 5) to said first electrode (scanning electrode Y) of each of said plurality of discharge cells (those belonging to one line) to sequentially select said plurality of discharge cells (consecutive lines are selected by sequentially applying scanning pulses P_y), and generating said first discharge (strong discharge) in a selected one of said plurality of discharge cells when a data pulse (subfield data applied to address electrodes A) is applied to said second electrode of the selected discharge cell (i.e. when the data indicates that the cell will be illuminated in this subfield); and generating the second (weak) discharge in said selected discharge cell when said data pulse is not applied (data

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indicates that that the cell will not be illuminated in this subfield, see paragraphs [0039] and [0046]).

As to **claim 14**, Hashimoto Publication teaches that driving unit is capable of generating a voltage pulse, which continuously changes from a first voltage (0V) to a second voltage (see a pulse Pry2 in FIG. 10, wherein the voltage is continuously changes from 0V to Py); and said driving unit starts outputting said voltage pulse as a voltage to be applied to the first electrode (Y), then stops the change of said voltage pulse at the point of time when said voltage pulse reaches a third voltage between said first voltage and said second voltage (as shown in another example of driving sequence in FIG. 5, wherein the pulse Pry2 is driven to the third voltage, which is between the ground 0V and address voltage Py), and thereafter performs said operation for defining whether said discharge cell is illuminated for display or not (page 4, paragraphs [0046-47]).

Allowable Subject Matter

7. **Claims 8-11** are allowed.
8. The following is an examiner's statement of reasons for allowance: none of the references, either singularly or in combination, teaches or fairly suggests a plasma display device comprising a plasma display panel, which comprises a discharge cell including a first electrode and a second electrode, wherein an address voltage is applied to the first electrode and wherein a driving unit performs a step of (a) generating a first voltage pulse having the same polarity as said address voltage has, for generating a discharge in said discharge cell to generate wall charges, and outputting said voltage pulse as a voltage to be applied to the first electrode; and (b)

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generating a second voltage pulse having the same polarity as the first voltage pulse has, for generating a discharge in said discharge cell to control the state of said wall charges, and outputting the second voltage pulse as a voltage to be applied to said first electrode; wherein both steps (a) and (b) are performed before the addressing period, and wherein the first and the second voltage pulses have waveforms, absolute values of which continually increase toward a predetermined polarity.

Nagaoka et al., US 6,512,501, teaches a plasma display device having a first and a second pulses applied to an electrode Y, wherein both pulses have waveforms, which continuously increase toward a predetermined polarity (see FIG. 25, for example), but the polarity of the pulses is the opposite and not the same as the polarity of an address pulse $-V_y$ applied to the electrode Y during address period (see FIG. 4).

Takayama et al., US 6,249,087, teaches the limitations of claims 8 and 9 (see in FIG. 10 voltages applied to an address electrode A, or in FIG. 15 voltages applied to a display electrode Y, for examples), but this reference, while having earlier foreign filing date, does not constitute a prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Auger, US 3,754,230, discloses a voltage supply unit for plasma display.

Criscimagna et al., US 4,683,470, discloses a method for driving plasma display.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is **(703) 306-2988**.

The examiner can normally be reached on M-F (9:00 a.m - 4:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on **(703) 305-4709**.

Any response to this action should be **mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or **faxed to:**

(703) 872-9314 (for Technology Center 2600 only).

Hand-delivered responses should be **brought to:** Crystal Park Two, 2121 Crystal Drive, Arlington, Virginia, Sixth Floor Receptionist.

Any inquiry of a general nature or relating to the status of this application or proceeding should be **directed to:** Technology Center 2600 Customer Service Office, whose telephone number is **(703) 306-0377**.



Alexander Eisen
February 6, 2003